

BEACH EROSION CONTROL PROJECT

# CLIFF WALK

NEWPORT, RHODE ISLAND

## GENERAL DESIGN MEMORANDUM



DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
WALTHAM, MASS.

SEPTEMBER 1969

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DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
424 TRAPELO ROAD  
WALTHAM, MASSACHUSETTS 02154

IN REPLY REFER TO:

NEDED-E

22 September 1969

SUBJECT: Beach Erosion Control Project, Cliff Walk,  
Newport, Rhode Island, General Design  
Memorandum

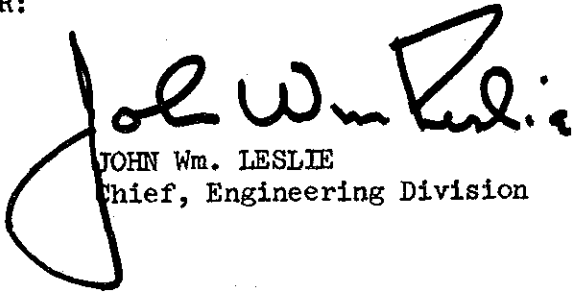
Chief of Engineers  
ATTN: ENGCW-E

1. There is submitted herewith for review and approval General Design Memorandum for the Beach Erosion Control Project, Cliff Walk, Newport, Rhode Island, in accordance with EM 1110-2-1150. This is the only memorandum that will be submitted for this project.

2. It is requested that the review by the Chief of Engineers of contract plans and specifications be waived.

FOR THE DIVISION ENGINEER:

1 Incl (14 cys)  
as

  
JOHN Wm. LESLIE  
Chief, Engineering Division

BEACH EROSION CONTROL PROJECT

CLIFF WALK  
NEWPORT, RHODE ISLAND

GENERAL DESIGN MEMORANDUM

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APPENDIX A

1	The City of Newport, Rhode Island
2	The City of Newport, Rhode Island
3	City Solicitor, Newport, Rhode Island

BEACH EROSION CONTROL PROJECT

CLIFF WALK

NEWPORT, RHODE ISLAND

A. PERTINENT DATA

1. PURPOSE. Shore, bluff and cliff erosion protection and repairs to Cliff Walk.

2. LOCATION.

State	Rhode Island
County	Newport
City	Newport

3. LENGTH OF PROTECTIVE STRUCTURES.

<u>TYPE</u>	<u>LENGTH</u>
Stone Mound	4,550 ft.
Dumped Riprap	735 ft.
Stone Slope Revetment	900 ft.

4. PRINCIPAL QUANTITIES.

Armor Stone	36,000 tons
Quarry-run Stone	49,000 tons
Random Fill	16,000 C.Y.

5. ESTIMATED PROJECT COST.

Federal Cost	\$293,000
Non-Federal Cost	<u>997,000</u>
Total Cost	\$1,290,000



DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION  
CORPS OF ENGINEERS  
WALTHAM, MASSACHUSETTS

BEACH EROSION CONTROL PROJECT

CLIFF WALK  
NEWPORT, RHODE ISLAND

GENERAL DESIGN MEMORANDUM

B. INTRODUCTION

1. PURPOSE. - The purpose of this memorandum is to present the general plan for preventing shore, bluff and cliff erosion, and repairs to Cliff Walk for the Beach Erosion Control Project. It will serve as the basis for the preparation of final contract plans and specifications.
2. SCOPE. - This memorandum presents data for the entire project on the components, functions, costs, and benefits.

C. AUTHORIZATION

3. AUTHORITY. - The Cliff Walk Project for Newport was authorized under the River and Harbor Act of 27 October 1965, Public Law 89-298, which reads in part as follows:

"SEC. 301. The following works of improvement of rivers and harbors and other waterways for navigation, flood control, and other purposes are hereby adopted and authorized to be prosecuted under the direction of the Secretary of the Army and supervision of the Chief of Engineers, in accordance with the plans and subject to the conditions recommended by the Chief of Engineers in the respective reports hereinafter designated. The provisions of section 1 of the River and Harbor Act approved March 2, 1945 (Public Law Numbered 14, Seventy-ninth Congress, first session), shall govern with respect to projects authorized in this title; and the procedures therein set forth with respect to plans, proposals, or reports for works of

improvement for navigation or flood control and for irrigation and purposes incidental thereto, shall apply as if herein set forth in full.

"Cliff Walk, Newport, Rhode Island: House Document Numbered 228, Eighty-ninth Congress, at an estimated cost of \$340,000;"

4. REQUIREMENTS OF LOCAL COOPERATION. - Federal participation is subject to the conditions that local interests comply with the following conditions of local cooperation:

a. Obtain and submit for approval, prior to construction, a suitable easement or lease, or other proof of the continued right of passage along the walk of the general public and of satisfactory access, and assure continued public ownership or control, and its administration for public use during the economic life of the project.

b. Contribute, prior to construction by the United States, 58.2 percent of the estimated first cost of construction of all shore structures for protection against erosion by waves and currents below the upper limit of computed wave runup and contribute 100 percent of the estimated first cost of restoration and filling of land, repair, construction and drainage of the walk, and construction of those portions of shore structures above the limit of wave runup. The estimated total first cost of construction is \$1,290,000. The estimated local contribution of first cost is \$997,000. The actual local contribution of first cost will be based on actual construction costs of the items of work involved in accordance with the above percentages.

c. Assure maintenance and repair of the walk and protective structures during the economic life of the project.

d. Provide at their own expense all necessary lands, easements and rights-of-way necessary for construction and repair.

e. Hold and save the United States free from damages due to construction of the project.

5. STATUS OF PROJECT. - There is no prior project for erosion protection of the bluffs and cliffs or for repairs and restoration of the Cliff Walk. This project is under design.

#### D. INVESTIGATIONS

6. BEACH EROSION CONTROL STUDIES. - House Document No. 228, 89th Congress, 1st Session, 1965, is a Beach Erosion Control Study on Cliff Walk, Newport, Rhode Island. This study concluded that it is practicable to restore and protect Cliff Walk by maintaining existing structures and by new construction. The proposed protection of Cliff Walk against erosion is eligible for Federal participation in the first cost of new construction in accordance with the policy established by Public Law 826, 84th Congress. Cost participation by the United States is not to exceed one-half the cost of new shore structures for protection against erosion by waves and currents adjusted in accordance with the degree of public benefits as required by Public Law 826, 84th Congress, and amended by Public Law 874, 87th Congress. Federal share of this new construction cost is 41.8 percent. The study recommended that the United States adopt the project for restoration and protection of Cliff Walk, authorizing the 41.8 percent Federal participation. A review of the study by the Board of Engineers for Rivers and Harbors also recommended authorization for construction of Cliff Walk protection and improvements.

7. PRIOR REPORTS. - There are no other reports for improvements and beach erosion control for this area.

#### E. LOCAL COOPERATION

8. COMPLIANCE WITH LOCAL COOPERATION REQUIREMENTS. - The City of Newport has furnished preliminary assurances of local cooperation. Formal request for assurances will be made after approval of the General Design Memorandum. A State referendum, held on 8 November 1966, authorized a \$493,000 bond issue for the State of Rhode Island's share of the project cost. A special election, held on 16 April 1968, authorized the City of Newport to issue bonds in an amount not to exceed \$493,000 for the project. (Letters, dated May 7, 1968, and June 11, 1968, are attached hereto in Appendix A.) The City has formed the Newport Cliff Walk Commission, Mr. George T. Cullen Chairman, to promote the project and handle matters at the local level.

9. ESTIMATED LOCAL COSTS. - The estimated local cost for project construction is \$997,000, broken down as follows:

Non-Federal Costs	\$590,000
58.2% of Costs Eligible for Cost Sharing	407,000
TOTAL LOCAL COSTS	\$997,000

## F. LOCATION OF PROJECT

10. LOCATION. - The project area is located on the south end of Aquidneck Island facing the Atlantic Ocean on the eastern shore of the City of Newport, Rhode Island. Cliff Walk extends approximately 3 miles southward from the west end of Easton (Newport) Beach to Lands End and then northerly to the end of the project at the east end of Bailey Beach. The Cliff Walk area is directly exposed to ocean waves which has resulted in erosion of the glacial till bluffs and soft rocky cliffs. This erosion has made more than one-half of the walk inaccessible or unsafe and resulted in losses from the shore estates.

## G. RECOMMENDED PROJECT PLAN

11. GENERAL DESCRIPTION. - The project consists of improvements for shore protection extending a distance of about 18,000 feet from the west end of Easton Beach to the east end of Bailey Beach. These improvements consist of intermittent reaches of backfill, dumped riprap, stone mounds, stone slope revetment, concrete toe walls, and repairs to existing structures. Restoration of the walk requires grading, surfacing and providing proper drainage since some walk areas have been eroded by rainfall runoff. Plans of protection as presented in the original Beach Erosion Control Study, dated March 1964, are principally retained except as noted under Paragraph 14, "Departures from Project Document Plan." Shore protection plans are as follows:

<u>PLAN</u> <u>TYPE &amp; LOCATION</u>	<u>DESCRIPTION</u>
A-1 Connarozzi & Fleisher Properties	Length = 60'. Stone mound w/2-3 ton armor stone, quarry-run stone fill. Top El. 15. Random fill and stone slope revetment. Top El. 37 $\pm$ .
A-2 Luce & Pilotte Properties	L = 50'. Stone mound w/2-3 ton armor stone, quarry-run stone fill. Top El. 15. Random fill and stone slope revetment. Top El. 32 $\pm$ .
S-1 Pilotte Property	Structural repairs to leaning wall with 4 masonry buttresses and concrete toe wall.

<u>PLAN TYPE &amp; LOCATION</u>	<u>DESCRIPTION</u>
A-3 Pilotte & Genga Properties	L = 70'. Stone mound w/2-3 ton armor stone, quarry-run stone fill. Top El. 13.5. Random fill and stone slope revetment. Top El. 31.
P-1 Roenigk Property	L = 90'. Patch and point existing stone wall.
A-4 Roenigk, Arnold & Cullen Properties	L = 150'. Stone mound w/2-3 ton armor stone, quarry-run stone fill. Top El. 15. Random fill and stone slope revetment. Top El. 20 <u>±</u> .
B-1 Cullen Property	L = 90'. 3-4 ton armor stone. Top El. 20 <u>±</u> .
B-2 Paterson Property	L = 50'. 2-3 ton armor stone. Top El. 15.
B-3 Richmond & Firestone Properties	L = 90'. 2-3 ton armor stone. Top El. 15.
P-2 Goelet Property Salve Regina College	L = 650'. Point, patch and repair existing walls.
P-3 O'Donnell Property	L = 30'. Rebuild existing stone wall and backfill eroded area.
P-4 Salve Regina College	L = 150'. Point, patch and repair existing walls.
C-1 Szechenyi Property	L = 80'. 1-2 ton armor stone and quarry-run stone fill. Top El. 18 <u>±</u> .
C-2 Szechenyi Property	L = 40'. 1-2 ton armor stone and quarry-run stone fill. Top El. 18 <u>±</u> .
D-1 Szechenyi Property	L = 20'. Stone slope revetment. Top El. 28 <u>±</u> .
D-2 Szechenyi Property	L = 280'. Stone slope revetment. Top El. 28-31.

PLAN  
TYPE & LOCATION

DESCRIPTION

A-5 Emerson & Van Pelt Properties	L = 400'. Stone mound w/2-3 ton armor stone, quarry-run stone fill. Top El. 14.
A-6 Monroe Property	L = 350'. Stone mound w/2-3 ton armor stone, quarry-run stone fill. Top El. 14 <u>±</u> .
B-4 Monroe Property	L = 75'. 2-3 ton armor stone. Top El. 15.
B-5 Monroe Property	L = 50'. 2-3 ton armor stone. Top El. 15.
B-6 Monroe Property	L = 60'. 3-4 ton armor stone in front of existing wall. Top El. 16.
B-7 Rives Property	L = 30'. 3-4 ton armor stone. Top El. 16.
E-1 Rives Property	L = 170'. 3-4 ton armor stone. Top El. 15. Stone slope revetment. Top El. 38.
A-7 Clark & Prince Estate Properties	L = 450'. Stone mound w/2-3 ton armor stone, quarry-run stone fill. Top El. 15. Random fill and stone slope revetment. Top El. 40.
P-5 Prince Estate Property	Repair deteriorated roof framing of tunnel.
A-8 Buchanan & Rovensky Property	L = 1,020'. Stone mound w/3-4 ton armor stone, quarry-run stone fill. Top El. 16. Random fill and stone slope revetment. Top varies El. 30-40.
A-9 Douglas, Vanderbilt & Cromwell Properties	L = 1,100'. Stone mound w/2-3 ton armor stone, quarry-run stone fill. Top El. 20.
A-10 Cromwell Property	L = 480'. Stone mound 2-3 ton armor stone. Top varies El. 20-26.

PLAN TYPE & LOCATION	DESCRIPTION
D-3 R.I. Hospital Trust Property	L = 230'. Stone slope revetment above existing wall. Top El. 22.
A-11 Chartier Real Estate Property	L = 100'. Stone mound w/2-3 ton armor stone and quarry-run stone fill. Top El. 19.
A-12 Chartier Real Estate Property	L = 320'. Stone mound w/2-3 ton armor stone and quarry-run stone fill. Top El. 19.
D-4 Chartier Real Estate & Pell Properties	L = 370'. Stone slope revetment. Top El. 30.

## 12. TOPOGRAPHY AND DRAINAGE. -

a. General. - The proposed layout of the cliff protection is shown on Plates 3 through 5. Drainage areas contributing surface runoff that will go over or through the protection are shown on Plate 1. Generally, the topography to the landside of the existing walk is flat. There are some private and municipal storm drains coming from the estates and city streets that are piped under it. In some areas, the walk is depressed and apparently serves as a drainage swale during high intensity storms. Wherever these swales discharge over the cliff, there are eroded areas that require pedestrian detours on private property. There are a few small drain inlets located in some areas of the existing walk but most of them appear to be inoperable and beyond repair. A complete evaluation of all existing storm drainage facilities will be made during the final stages of design. In addition to storm drains, there are a number of sanitary sewers, salt water intake and miscellaneous other utility lines crossing through areas of proposed construction. Details on the function, condition and proposed modification of these lines will be clarified in the final design.

b. Walk Construction Proposals. - The following criteria will serve as a basis for final design:

### (1) Walks. -

(a) Build new walks and restore old ones to a minimum width of 5 feet.

(b) Gravel, blacktop and concrete walks in good condition will not be altered.

(c) Existing walks consisting of topsoil, muddy areas or where bushes will be removed for widening, will be rebuilt with a 6-inch gravel base and 1-1/2-inch of blacktop.

(d) Walks to be built over eroded sections of bedrock shall be constructed on a cobble base with a 4-inch concrete cap.

## (2) Grading.

(a) All surface flows that can be discharged directly over the top of the cliff without creating an erosion hazard shall be disposed of in this manner.

(b) Where surface flows are concentrated, paved gutters shall be provided to direct these flows to drain inlets located at strategic locations.

(c) Drain inlets shall be constructed of reinforced concrete pipe with a cast iron frame and grate. Discharge piping shall be cast iron soil pipe. They shall be located at all depressions and at the end of paved gutters where necessary.

(d) All eroded sections of the walk shall be filled. If these fills cannot be stabilized, the walk will be relocated.

## (3) Existing Utilities.

(a) Storm Drains. - The existing city storm drains are shown on Plate 1. No information is available on drainage systems on the individual estates at this time. It will be necessary to make a detailed survey to establish the location of all private utility lines currently in operation.

(b) Sanitary Sewers. - The sewage from most of the estates along Cliff Walk currently discharges into the sea with no treatment. The raw sewage lines that are located in proposed construction areas will have sleeves provided for them in the protection and the lines will be lengthened in those areas where the new grades move the discharge points seaward.

(c) Salt Water Intake Lines. - Some of the estates have active sea intake lines to service swimming pools. Modifications will be required with these lines in areas of proposed construction.



13. DESCRIPTION OF WALK RESTORATION AND UTILITY MODIFICATIONS. -

a. Walk. -

<u>Walk Location</u>	<u>Work Recommendations</u>
Memorial Drive to southside of Luce property	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel.
Pilotte wall	Restore concrete walk. Provide two 6-inch drains through wall.
Pilotte, Genga and Taffinder properties	Remove brush. Provide blacktop 1-1/2-inch on 6-inch gravel.
Taffinder and Roenigk properties	Point and patch concrete walk.
Roenigk and Arnold	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel. Remove brush.
Cullen, Ordway and Paterson properties	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel.
Paterson, Richmond, Firestone and Reed properties	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel.
Goelet Estate	Fill and stabilize eroded section of walk.
Salve Regina College (including O'Donnell property)	Widen walk where it is constricted in this reach. Restore existing inlets.
Szechenyi Estate	Fill behind seawall to provide drainage runoff.
Bogert Estate	Patch concrete sidewalk. Fill behind seawall to provide drainage runoff.
Young Estate	Incorporate the top of existing seawall into walk and widen to 5 ft. with 1-1/2-inch blacktop on 6-inch of gravel.

<u>Walk Location</u>	<u>Work Recommendations</u>
Emerson & VanPelt	Walk restoration incorporated with the protective works.
Emerson (End of Marine Ave.)	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel base.
Monroe Estate	Remove brush. Provide 5 ft. blacktop 1-1/2-inch on 6-inch gravel. Restore walk.
Rives and Clark	Well maintained grass walk here. No alterations proposed.
Clark & Prince Estates	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel base.
Buchanan & Rovensky	Walk restoration incorporated with protective work.
Merriman & R.I. Episcopal Convention	Incorporate top of existing sea-wall into walk and widen to 5 ft. width.
Douglas, Vanderbilt and Cromwell	Walk restoration incorporated with protective work.
Cromwell Estate (southerly section)	Walk restorations incorporated with protective works.
R.I. Hospital Trust Co., Prince & Widener Estates	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel.
Chartier Real Estate Co.	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel and concrete capped rubble wall over eroded bedrock areas. Portion of walk restoration incorporated with protective works.
Pell, Fidelity-Phila. Trust Co. and Sellar Estates	New 5 ft. wide blacktop 1-1/2-inch on 6-inch gravel.

b. Storm Drain Inlets and Piping.

15 inlets, 320 of C.I. pipe, 4 wall drains.

c. Utility Line Modifications. - 25 modifications to drains, salt water influent and other utilities crossing through or requiring extension through areas where new construction is proposed on the face of the cliff.

#### H. DEPARTURES FROM PROJECT DOCUMENT PLAN

14. DEPARTURES FROM PROJECT DOCUMENT PLAN. - Several protection plans, in the area between the end of Narragansett Avenue south approximately 1,800 feet to the O'Donnell property, have been deleted from the required protection schemes recommended in the original beach erosion control study. Two proposed breakwaters, labeled as N-1 and N-2 in the original study, were found unnecessary. The areas to be protected consist of stone and rock cliffs and are considered durable enough to last the life of the project without any additional protection. The dumped riprap section, labeled A-11 in the original study report, was revised to provide for repairing existing stone walls to reduce construction costs. Original proposed schemes E-2 and E-3 located approximately 2,000 feet north of Narragansett Avenue were also deleted from the project, since there is exposed rock on the slopes which provide protection against any further erosion.

#### I. FACTORS AFFECTING CONSTRUCTION

15. FACTORS AFFECTING CONSTRUCTION. - Construction of this project will be difficult due to the high cliffs in some areas and the lack of direct access to the proposed shore protection areas. The limited water depth, offshore rock areas, and the exposed project location preclude the possibility of any waterborne construction activities. The city streets of Seaview Avenue, Webster Street, Ruggles, Shepard and Marine Avenues and Ledge Road will provide access to construction areas adjacent to public roads. To supplement these public access routes, it is estimated that temporary easements will be required over private property, such as the Prince Estate, Buchanan property, and the Rhode Island Hospital Trust property. In the areas of the high cliffs, ramps will have to be built down to the foot of the cliffs that will permit placing the quarry-run stone material in the type "A" shore protection plans. This material will be brought up to proper grade that will be above the normal tide and will permit use of this quarry-run stone fill as a construction access road for placing armor stone and random fill material.

## J. HYDROLOGY

### 16. PREVAILING AND STORM WINDS. ..

a. General. - United States Weather Bureau wind records for Providence, Rhode Island, the nearest weather station, located approximately 20 miles north of the project area, were used to compile data on prevailing and storm winds. A wind diagram, based on hourly observations of wind speeds and directions for the 12-year period from October 1949 through September 1961 inclusive, is shown on Plate No. 2.

b. Prevailing Winds. - The wind diagram shows that prevailing winds approach from westerly directions with the greatest duration from the southwest. A tabulation showing the duration of winds, their direction and speeds, is included in Table 1.

c. Gale and Storm Winds. - The compilation of gale and storm winds (wind intensity 32 miles per hour and higher) indicates that the greatest duration is from the southeast through the south southwest. The project area faces open water from these directions and, therefore, is exposed to large waves which directly approach the shoreline. A tabulation showing the duration of gale and storm winds, their direction and speeds is included in Table 2.

### 17. TIDES. -

a. General. - Tides in the project area are semi-diurnal. Mean ranges at Newport Harbor and Sakonnet Point, Little Compton, R. I., are 3.5 and 3.1 feet, respectively, and corresponding spring ranges are 4.4 and 3.9 feet. The area lies between Newport Harbor and Sakonnet Point.

b. Tidal Observations. - Tidal observations by the United States Coast and Geodetic Survey for a 10-year record (not continuous) between the years 1939 and 1959 at Newport Harbor were analyzed.

c. A comparison was made between the tides 2 feet above mean high water and greater at Newport Harbor located in Narragansett Bay, and Sakonnet Point, which faces open water, for the period 1957 - 1959 to determine whether variations from the mean range were comparable. The comparison showed that the variations at Newport Harbor exceeded those at Sakonnet Harbor by 0.1 to 0.5 foot, averaging 0.3 foot. Use of the longer period of records available for Newport Harbor for determination of a design tide level should result, therefore, in a conservative design. The

TABLE 1

## WIND SPEEDS AND DIRECTIONS (OCTOBER 1949 - SEPTEMBER 1961 INCLUSIVE)

## PROVIDENCE, R. I.

## NUMBER OF HOURS

Wind Speed (M.P.H.)	0-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	& over	Total	% Total Duration	Average Speed M.P.H.	Wind Movement Miles	% Total Movement	% Per Degree
Direction:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
N	296	1625	2968	2412	445	94	18	1	-	7,859	7.5	11.2	88,343.3	7.9	0.33
NNE	196	1041	2256	2042	412	108	10	-	-	6,065	5.8	11.8	71,803.5	6.4	0.26
NE	285	1017	1674	1198	193	56	7	2	-	4,432	4.2	10.7	47,414.2	4.2	0.19
ENE	82	281	435	305	57	19	9	3	-	1,191	1.1	10.9	13,018.8	1.2	0.05
E	112	299	346	204	27	11	1	4	-	1,004	0.9	10.0	10,093.4	0.9	0.04
ESE	82	297	369	223	38	28	5	1	1	1,044	1.0	10.2	10,622.1	1.0	0.04
SE	378	1170	1776	1462	277	67	18	6	1	5,155	4.9	10.7	55,163.9	4.9	0.22
SSE	320	1191	1773	1493	352	68	20	6	1	5,224	5.0	11.1	57,927.8	5.2	0.22
S	699	2433	3201	2183	528	162	22	12	4	9,244	8.8	10.5	97,084.1	8.7	0.39
SSW	426	1809	2520	2753	929	303	55	9	-	8,804	8.4	12.4	108,790.4	9.7	0.37
SW	896	2693	3703	2736	726	155	16	1	-	10,926	10.4	10.6	115,677.6	10.4	0.46
WSW	430	1608	2353	1566	365	127	14	1	-	6,464	6.1	10.5	68,159.3	6.1	0.27
W	541	1589	1889	1493	403	104	3	-	-	6,022	5.7	10.4	62,571.3	5.6	0.25
WNW	281	1414	2328	2965	787	240	13	3	1	8,032	7.6	12.9	104,012.3	9.3	0.34
NW	446	2308	3595	3213	708	133	9	-	-	10,412	9.9	11.4	118,332.8	10.6	0.44
NNW	229	1521	2522	2437	554	139	7	1	1	7,411	7.1	11.9	88,332.2	7.9	0.32
Calms	:	:	:	:	:	:	:	:	:	5,903	5.6	:	:	:	:
Totals	5699	22296	33708	28685	6801	1814	227	50	9	105,192	100.0	10.6	1,117,347.0	100.0	:

TABLE 2

## GALE AND STORM WIND DURATION BY DIRECTION (OCTOBER 1949 - SEPTEMBER 1961 INCLUSIVE)

## PROVIDENCE, R. I.

Wind	:	:	:	:	Greater	:	Greater	:	Greater	:	% Total Duration		
Speed	:	32 - 38	:	39 - 46	:	than	:	than	:	than	:	greater than	
(M.P.H.)	:	:	:	:	:	47	:	39	:	32	:	32	
Direction	:	Hrs	:	Hrs/Yr	:	Hrs	:	Hrs/Yr	:	Hrs	:	Hrs/Yr	:
N	:	18	:	1.50	:	1	:	0.08	:	--	:	--	:
NNE	:	10	:	0.83	:	--	:	---	:	--	:	---	:
NE	:	7	:	0.58	:	2	:	0.17	:	--	:	--	:
ENE	:	9	:	0.75	:	3	:	0.25	:	--	:	--	:
E	:	1	:	0.08	:	4	:	0.33	:	--	:	--	:
ESE	:	5	:	0.42	:	1	:	0.08	:	1	:	0.08	:
SE	:	18	:	1.50	:	6	:	0.50	:	1	:	0.08	:
SSE	:	20	:	1.67	:	6	:	0.50	:	1	:	0.08	:
S	:	22	:	1.83	:	12	:	1.00	:	4	:	0.33	:
SSW	:	55	:	4.58	:	9	:	0.75	:	--	:	--	:
SW	:	16	:	1.33	:	1	:	0.08	:	--	:	--	:
WSW	:	14	:	1.17	:	1	:	0.08	:	--	:	--	:
W	:	3	:	0.25	:	--	:	---	:	--	:	---	:
WNW	:	13	:	1.08	:	3	:	0.25	:	1	:	0.08	:
NW	:	9	:	0.75	:	--	:	---	:	--	:	---	:
NNW	:	7	:	0.58	:	1	:	0.08	:	1	:	0.08	:

total and average annual number of occurrences of high tides which exceeded the mean height by 2.0 feet or more at Newport Harbor, based on the 10-year record, are given in Table 3 in increments of one-tenth foot.

TABLE 3

TIDES EXCEEDING MEAN HEIGHT AT NEWPORT, RHODE ISLAND

Feet Above MHW	Occurrences *	Average Number of Occurrences Per Year *
3.8	1	0.1
3.7	1	0.1
3.6	1	0.1
3.5	1	0.1
3.4	1	0.1
3.3	2	0.2
3.2	2	0.2
3.1	3	0.3
3.0	6	0.6
2.9	6	0.6
2.8	9	0.9
2.7	11	1.1
2.6	12	1.2
2.5	14	1.4
2.4	20	2.0
2.3	27	2.7
2.2	45	4.5
2.1	65	6.5
2.0	94	9.4

\* Equaling or exceeding the stated elevation.

18. DESIGN TIDE. - The design tide is the highest tide which it is estimated occurs in the project area on an average once a year. Estimate of the height of the design tide was based on observed tidal heights at Newport Harbor and Sakonnet Point, Little Compton, Rhode Island, as described in Paragraph 17, TIDES. The design tide of 2.8 feet above mean high water was estimated as an average of the tides for a 10-year record at Newport Harbor. The elevation of design tide referred to mean low water is 6.3 feet.

19. DESIGN WAVE. - The height of design wave used for structures is the highest wave which can occur at the structure at the time of design tide. The project area is directly exposed to wave action from southerly directions across an unrestricted fetch over the Atlantic Ocean. Therefore, water depths at the structures and not fetch and wind speed, limit the possible wave height. Design wave height was computed using the solitary wave formula  $H = d/1.28$  where H is the wave height and d is the depth of water at time of design tide. Maximum wave heights, based on the depths of water encountered at the structures, are tabulated below:

TABLE 4

<u>Water Depth</u> <u>(Feet MLW)</u>	<u>Design Depth (d)</u> <u>(Feet) (1)</u>	<u>Wave Height (H)</u> <u>(Feet)</u>
0.0	6.3	4.9 (2)
2.0	8.3	6.5 (3)
4.0	10.3	8.0 (4)

(1) Depth of water plus mean range of tide (3.5) plus design tide (2.8).

(2) Applicable to Plans A-3, A-5, A-6, A-11, A-12, C-1, C-2, D-1 thru D-4.

(3) Applicable to Plans A-1, A-4, A-7, A-9, A-10, B-2 thru B-5.

(4) Applicable to Plans A-2, A-8, B-1, B-6, B-7, E-1.

20. WEIGHTS AND SLOPES OF STONE STRUCTURES. - The minimum weights and slopes of armor stone in structures are determined from the formula:

$$W = \frac{W_r H^3}{K_d (S_r - 1)^3 \cot \alpha}$$

where W = Weight of stone in pounds

$W_r$  = Unit weight of stone in pounds/cu.ft.



$K_d$  = A coefficient; 3.0 for the trunk of structures in shallow water subject to breaking waves.

$S_r$  = Specific gravity  $W_r/W_w = \frac{\text{Unit weight stone}}{\text{Unit weight of water}}$

$\alpha$  = Angle of slope to the horizontal.

H = Wave height at structure.

Minimum weights of armor stones and slopes were determined as tabulated below:

TABLE 5

<u>Wave Height (Feet)</u>	<u>Slope</u>	<u>Minimum Weight of Stone (lbs)</u>	<u>Remarks</u>
4.9	1 on 1.5	1133	See note (2), Table 4
6.5	1 on 1.5	2500	See note (3), Table 4
8.0	1 on 1.5	4667	See note (4), Table 4

The stone immediately beneath the armor stone was computed to have minimum weights equal to 10 percent of the armor stone weight. Quarry-run stone up to 600 pounds in weight was selected. The top width and thickness of armor stone in structures was computed as at least the dimension of the side of a cube of stone having the specified weight.

21. WAVE RUNUP. - The wave runup was estimated for the proposed stone structures using Figure 61B and the method described in Technical Report No. 4 of the Beach Erosion Board. The wave period used in the determination of the equivalent deep water wave height

( $H_o = \frac{1.837}{T} (d_b)^{3/2}$ ) and in the wave steepness ( $H'_o/T^2$ ) was the

period that produced the highest runup. Maximum runup was determined as tabulated below:

TABLE 6

<u><math>d_b</math></u>	<u><math>H_b</math></u>	<u>T</u>	<u><math>H'_o</math></u>	<u><math>H'_o/T^2</math></u>	<u>Slope</u>	<u><math>R/H'_o</math></u>	<u>R</u>	<u>Runup(2)</u>	<u>Top Elev. of Wave Runup</u>
6.3	4.9	6	4.83	.134	1: 1.5	2.7	13.1	6.6(3)	12.9
8.3	6.5	6	7.35(1)	.180	1: 1.5	2.5	16.2	8.1(4)	14.4
10.3	8.0	8	6.96	.109	1: 1.5	2.8	19.5	9.8(5)	16.1

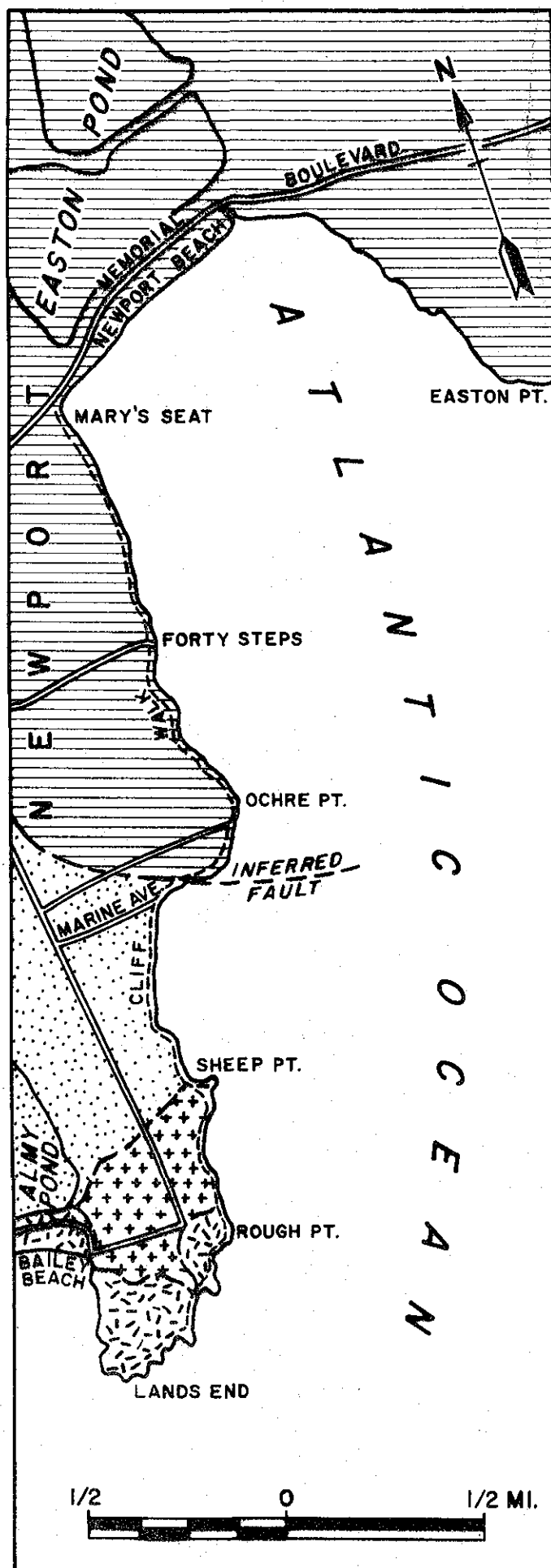
- (1) Where  $H'_o$  is greater than  $H_b$ ,  $H_b$  is used.
- (2) As Fig. 61B of TR-4 is for smooth slopes, R is reduced 50 percent to determine runup on riprap.
- (3) See note (2), Table 4.
- (4) See note (3), Table 4.
- (5) See note (4), Table 4.

The top elevation of wave runup is computed by adding the design tide elevation (6.3) to the runup column of Table 6. The minimum top elevation of stone structures which do not have stone slope revetment above them are determined by the computed runup. Where stone slope revetment is included above the structure, a lower elevation is used, where allowable since the slope revetment will provide some protection in the event of overtopping of the fronting structure. Variations in the heights of the stone structures, both increases and decreases, are made in some locations, (a) to permit use of the stone sizes and layers required by design conditions, (b) to permit construction of the walk at an elevation which will merge with adjacent segments of walk, (c) to fit existing physical conditions (heights of walls, slopes of bluffs, etc.). Protection stone structures have been simplified from the layered construction shown in the original project report in order to facilitate placement of materials with a resultant reduction in estimated construction costs.

## K. GEOLOGY

22. INVESTIGATIONS. - Geological reconnaissance of Cliff Walk was supplemented with examination of aerial photographs and a study of available geologic literature. A detailed reconnaissance type geological map (not presented) was prepared on a scale of 1 inch equals 100 feet. Figure K-1 is a generalized geologic map showing bedrock type distribution in relation to shore configuration.

a. Upper Rhode Island Formation Section. - Gray sandy shale and coarse conglomerate bedrock is exposed along the first 0.1 mile south of Memorial Boulevard. It dips westward into the land mass at low angles ( $5^\circ$  -  $10^\circ$  at the extreme north end). There is considerable glacial till overburden containing broken bedrock on top of the rock beds, and the shore has suffered some recession relative to the adjacent area to the south. The next 0.4 mile to the south has rock beds of increasing elevation southward, which dip more steeply into the land ( $45^\circ$  to  $90^\circ$ ) and because of the wall effect of the exposed underside of the rock beds, has suffered less recession. Beginning



## LEGEND

- Upper Rhode Island Formation. Gray shale, largely sandy, and Coarse Conglomerate.
- Lower Rhode Island Formation. Coaly shale phase of basal arkose beds.
- Greenstone, intrusive with argillitic sedimentary phase near north contact.
- Granite, largely porphyritic intrusive to greenstone.

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WALTHAM, MASS.

BEACH EROSION CONTROL PROJECT  
**CLIFF WALK**  
**SHORELINE GEOLOGY**  
**NEWPORT R.I.**

about 800 feet north of Forty Steps and extending southward for about 0.6 mile to Ochre Point, the shoreline is indented again with respect to areas north and south. The indentation is greatest beginning 0.1 mile south of Forty Steps and extends for another 0.1 mile. It represents a relative recession of more than 500 feet, assuming the shoreline was once relatively straight. Rock dips in this area are generally flatter ( $5^{\circ}$  to  $50^{\circ}$ ) and the bedrock structure is somewhat disrupted locally, showing evidence of faulting on the south and shattering on the north. The combination of low dip angle and disrupted rock structure accounts for the greater recession here. Local undermining at the points of greatest recession indicates future major losses along these high cliffs could occur unless greater protection is provided.

Ochre Point owes its prominence to the existence of steeply dipping rock beds right at the point but the structure is much disrupted and the point is vulnerable to considerable flanking wave action. Bedrock south of the point dips at a low angle ( $20^{\circ}$  -  $25^{\circ}$ ) but in a southerly direction, exposing the cross-sectional ends rather than strike ends of the beds, hence it has more resistance to erosion than have the correspondingly low-dipping beds farther north.

The shore turns abruptly westward for a distance of almost 2,000 feet from Ochre Point to the end of Marine Avenue, whence it resumes its southerly course. The east-west segment parallels what the structural relations of the rock indicate must be a major fault, and the shoreline presumably follows the fault edge. A large quartz vein, resembling a groin, outcrops near the end of Marine Avenue where the shore turns south again. It evidently was intruded through the unconformable contact between Upper Rhode Island Formation rocks on the north and Lower Rhode Island Formation rocks to the south.

b. Lower Rhode Island Formation Section. - Lower Rhode Island Formation rocks extend along the shore for about 2,500 feet south of the quartz vein off Marine Avenue. The rocks dip mostly to the northwest at  $45^{\circ}$  to  $60^{\circ}$  and consist largely of coaly shale, which accounts readily for relative recession in the area of about 1,600 feet. Bedrock is seldom exposed in the southern half of this stretch except for a lesser headland about 700 feet north of Sheep Point where there is severe erosional flanking, largely in glacial till overburden.

The exposure of rocks of the Rhode Island Formation ends just north of Sheep Point, where the shoreline is deeply indented. The contact between the Rhode Island Formation rocks and rocks to the south is eroded and may be open, accounting for deep recession at this point.

c. Greenstone Section. - Green-colored bedrock outcrops for the next 0.3 mile or about the northerly two-thirds of the distance between Sheep Point and Rough Point. The rock appears sedimentary (argillitic) at Sheep Point and is banded south of that but becomes massive farther south and appears to be at least partly of igneous origin. Sheep Point itself protrudes conspicuously seaward and consists of a knob of a very massive gray quartzitic rock, possibly volcanic in origin, which contacts massive greenstone at that point. The knob is tied to the shore by glacial till overburden which is undergoing severe erosion. The greenstone exposures, while of low elevation, are massive enough to resist wave action and only the glacial till overburden on them is being eroded appreciably. The greenstone makes contact with granite, which intruded it just north of Rough Point. Other small greenstone exposures along Cliff Walk occur just east of Bailey Beach near the end of Cliff Walk and briefly between Lands End and Rough Point.

d. Granite Section. - The remainder of Cliff Walk, south and west of Rough Point, crosses massive granite outcrops. The granite is highly resistant to erosion and stands up in high relief, particularly at Rough Point, despite heavy wave action in that highly exposed area. The granite is elevated sufficiently to prevent overburden erosion in most of this stretch, although there are a few large open major joints and gullies of low relief in the rock mass. They contain very cobbly pocket beaches and while wave runup, splashup, and nipping occur in these areas, no serious general recession problem exists in the granite area. There is a problem of keeping a pathway for Cliff Walk however, because masonry walls used as guide rails and patches on the rock surface for footways cannot stand the heavy wave action which characterizes the area during storms. The open joints and gullies present particular problems in this respect and some fallout may occur from massively jointed section of rock in the higher areas.

## 23. AVAILABILITY OF CONSTRUCTION MATERIALS. -

a. Earthen Borrow. - Earthen borrow for fills is scarce on Aquidneck Island. A commercial sand plant operates just south of the west abutment of the bridge to Tiverton and a small sandy gravel pit has been operated on the northwest part of the island, but supplies are very limited and largely committed. The new Jamestown bridge opens up possibilities of obtaining fill in Jamestown and the Saunderstown area west of Narragansett Bay at respective distances of about ten and fifteen miles. Sand is brought in to Newport commercially from Westport, Massachusetts, a distance of twenty miles. It is assumed, based on the small quantity required (16,000 c.y.) and the foregoing circumstances, that all earthen materials will be obtained within a haul distance of twenty miles.

b. Rock Borrow. - Less than 100,000 tons of rock are required. About 80% of it is in the less than 3-ton size range. The remainder is also fairly small (4 - 6-ton size). The nearest possible source is in Tiverton where one construction quarry has operated intermittently for various southern New England breakwater jobs. Another large, shallow quarry operation, used to supply rock for a destroyer pier at Portsmouth, was graded to become a tank farm. Both of these quarries were limited to producing sound rock no larger than 3-ton size because of structural fissures in the rocks. The situation is not very favorable because the remaining quarry appears to be nearly exhausted. Optimistically, most of the rock can be produced in Tiverton, a haul distance of about twenty miles, but prudently it has to be assumed that the rock will come from as far distant eastward as East Freetown, Massachusetts, (thirty-five miles) or as far to the west as Westerly or Bradford, Rhode Island, (forty and thirty-five miles, respectively).

24. CONCRETE MATERIALS. - In view of the minor quantity of concrete involved, the concrete aggregate investigation was confined to established commercial aggregate sources that supply aggregate to ready-mix concrete plants in the area of the subject project. A field reconnaissance (March 1969) was performed to determine potential sources of concrete and concrete aggregates. There are two sources of ready-mix concrete in the Newport, Rhode Island, area. One source, the Newport Ready-Mix Concrete Company, Middletown, Rhode Island, operates a semi-automatic control transit-mix type concrete plant, a two-mile haul distance to the project site. They obtain their aggregate from Pine Hill Sand and Gravel Company, Dartmouth, Massachusetts. The other source, the M. A. Gammino Company, Portsmouth, Rhode Island, operates an automatic control transit-mix type concrete plant, a twelve-mile haul distance to the project site. They obtain their aggregates from Assonet Sand and Gravel Company, Assonet, Massachusetts. Test data on aggregate sources are reported in Technical Memorandum No. 6-370, "Test Data - Concrete Aggregates in Continental United States," Volume 5, Area 10. During the recent field reconnaissance, a geologic inspection of each source and a petrographic examination of current samples were performed. Pine Hill Sand and Gravel Company test data and location are reported in TM 6-370 at Latitude 41°N - Longitude 70°W, Index No. 5. Assonet Sand and Gravel Company test data and location are reported in TM 6-370 at Latitude 41°N - Longitude 71°W, Index No. 9 (rev. #2). The current samples indicate materials and sources are similar geologically and petrographically as when originally tested.

## I. REAL ESTATE REQUIREMENTS

25. REAL ESTATE REQUIREMENTS. - No real estate interests need to be acquired for this project other than temporary construction easements in certain areas. Cliff Walk traverses privately-owned land, occupied by many of Newport's famous showplace mansions. Except for a few city-owned streets, the shore is privately owned. Public access to the walk is available from city-owned streets and from private streets, maintained by the City, which the public has used for many years. According to the City Solicitor, the City of Newport for the past 100 years has taken the position that the public has the right to pass and repass along the entire face of Cliff Walk from Memorial Boulevard to Bailey's Beach. A legal opinion, dated 28 March 1969, prepared by the City Solicitor of Newport and attached hereto in Appendix A, affirms the right of the general public to pass and repass along Cliff Walk. The principal public interest involved arises from the public use of this walk. The shore is mostly coarse in composition and not used for bathing except at the shore end of Marine Avenue. Bathing at this location is limited by lack of space and the absence of any facilities for bathers.

# M. COST ESTIMATE

26. ESTIMATES OF COST. - The estimated cost is as follows:

## ELIGIBLE FOR COST SHARING

<u>ITEM</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
Random Fill	-	-	-	-
Quarry-run Stone	25,000	Tons	\$9.50	\$237,000
Armor Stone (2-3 Ton Size)	18,000	Tons	12.00	216,000
Armor Stone (4-6 Ton Size)	10,000	Tons	14.60	146,000
Repairs to Existing Structures			L.S.	16,000
SUB-TOTAL (Construction Cost)				\$615,000
Engineering and Design				40,000
Supervision and Administration				45,000
TOTAL				\$700,000

## NON-ELIGIBLE FOR COST SHARING

Random Fill	16,000	C.Y.	\$3.50	\$56,000
Quarry-run Stone	24,000	Tons	9.50	228,000
Armor Stone (2-3 Ton Size)	8,000	Tons	12.00	96,000
Armor Stone (4-6 Ton Size)	-	-	-	-
Repairs to Existing Structures			L.S.	25,000
Walk Construction			L.S.	110,000
SUB-TOTAL (Construction Cost)				\$515,000
Engineering and Design				35,000
Supervision and Administration				40,000
TOTAL				\$590,000

a. Local Contribution. - Local contribution is 58.2% of project cost eligible for cost sharing in addition to all non-eligible costs.

Eligible for cost sharing:	\$700,000 x 58.2%	=	\$407,000
Non-eligible for cost sharing		=	590,000
TOTAL LOCAL COSTS			\$997,000

b. Federal Contribution. -

\$700,000 x 41.8%	\$293,000
-------------------	-----------

c. Total Project Cost. -

Local Contribution	\$997,000
Federal Contribution	293,000
TOTAL COST (Includes Contingencies)	\$1,290,000



#### N. SCHEDULES FOR CONSTRUCTION

27. CONSTRUCTION SCHEDULE. - According to present schedules, design will be completed by November 1969 with a construction contract award in spring 1970. It is estimated that construction will require two seasons with completion by December 1971.

28. FUNDS REQUIRED. - It is estimated that funds will be required for the proposed construction schedule as follows:

<u>FISCAL YEAR</u>	<u>FEDERAL FUNDS</u>	<u>NON-FEDERAL FUNDS</u>
Through FY 1969	137,000	-
FY 1970	30,000	150,000
FY 1971	90,000	665,000
FY 1972	36,000	182,000

#### O. MAINTENANCE

29. MAINTENANCE. - Maintenance of the project will be the responsibility of the City of Newport.

#### P. ECONOMICS

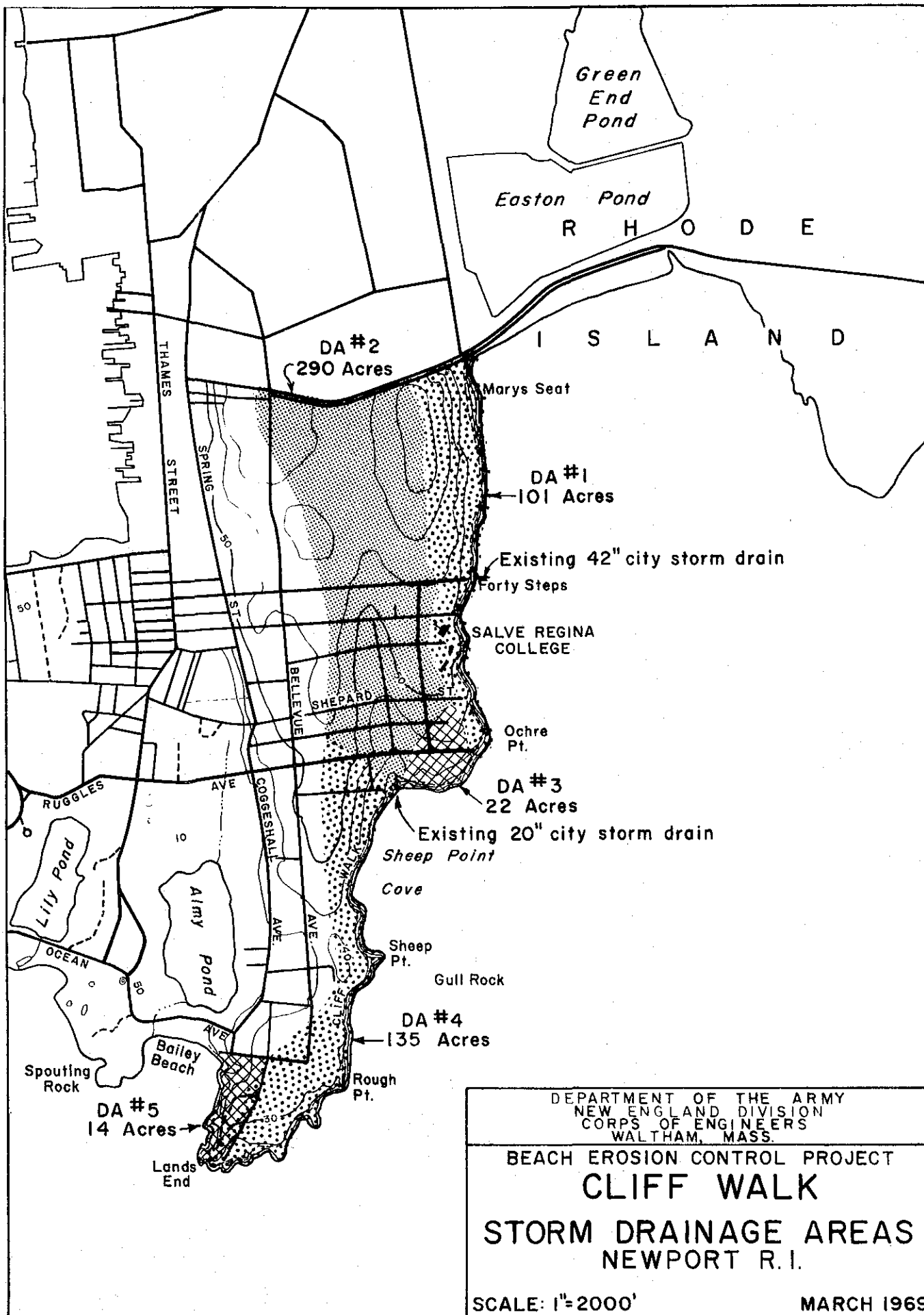
30. ANNUAL BENEFITS FROM IMPROVEMENTS. - The project benefits are based on the promotion and encouragement of the healthful recreation of the public by restoration, protection and improvement of Cliff Walk and prevention of direct damages by preventing loss of land and by reducing maintenance and damages to existing protective structures and the walk. The annual benefits as outlined in the authorized survey report have been increased due to higher price levels. Redevelopment benefits have been added since the project is located adjacent to the Town of Jamestown, Newport County, Rhode Island, which is classified as a Title IV(d) Redevelopment Area. The summary of current estimates annual benefits is as follows:

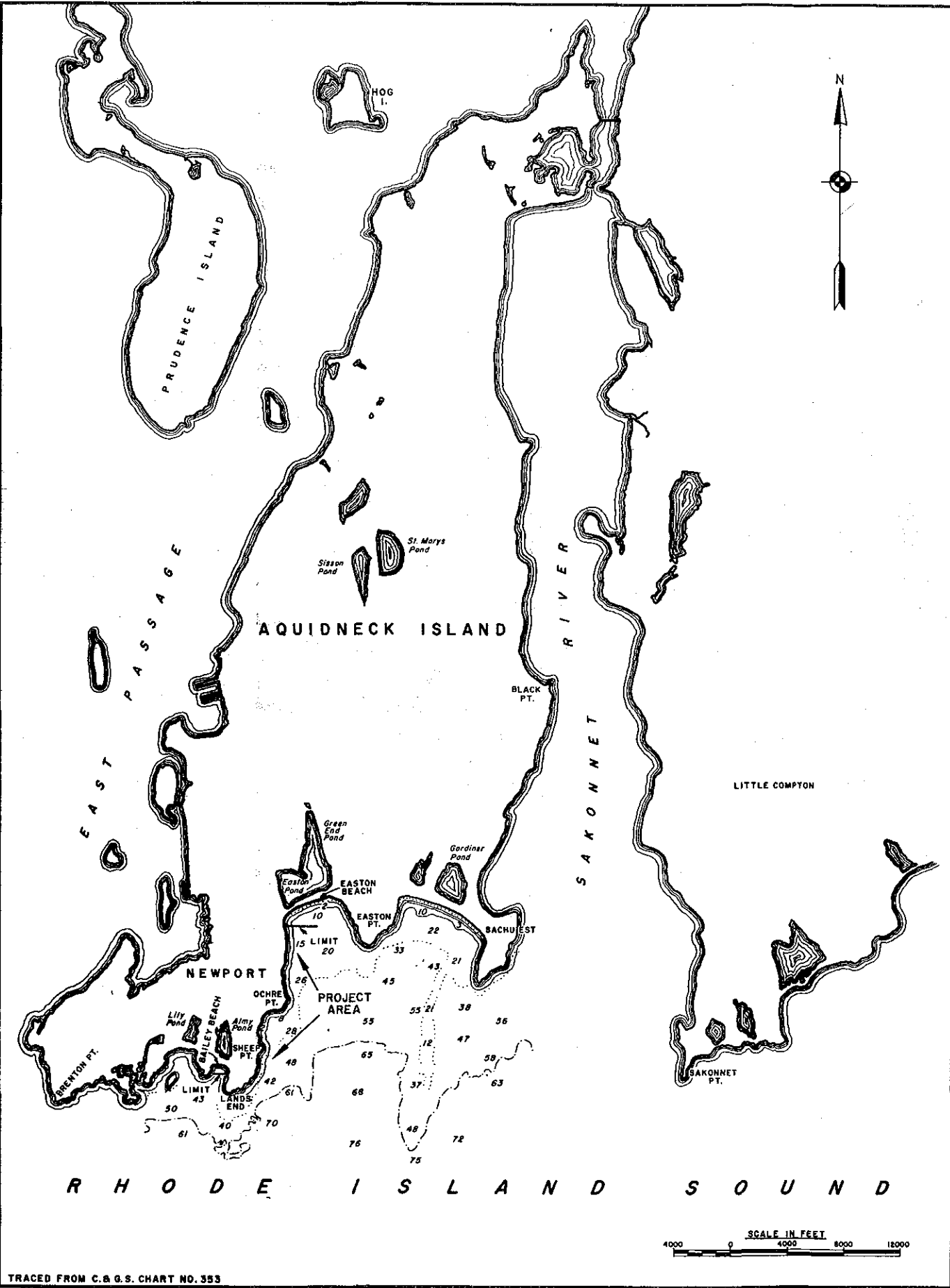
Q. COORDINATION WITH OTHER AGENCIES

33. COORDINATION WITH OTHER AGENCIES. - Coordination with other agencies is not required other than letters from Federal and State agencies published in House Document No. 228.

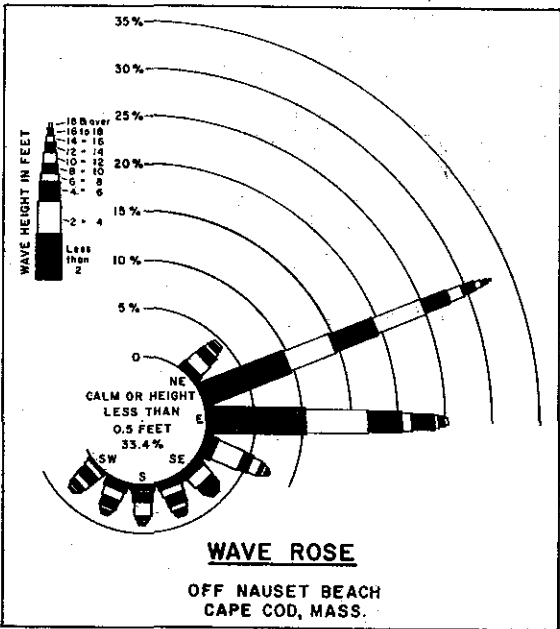
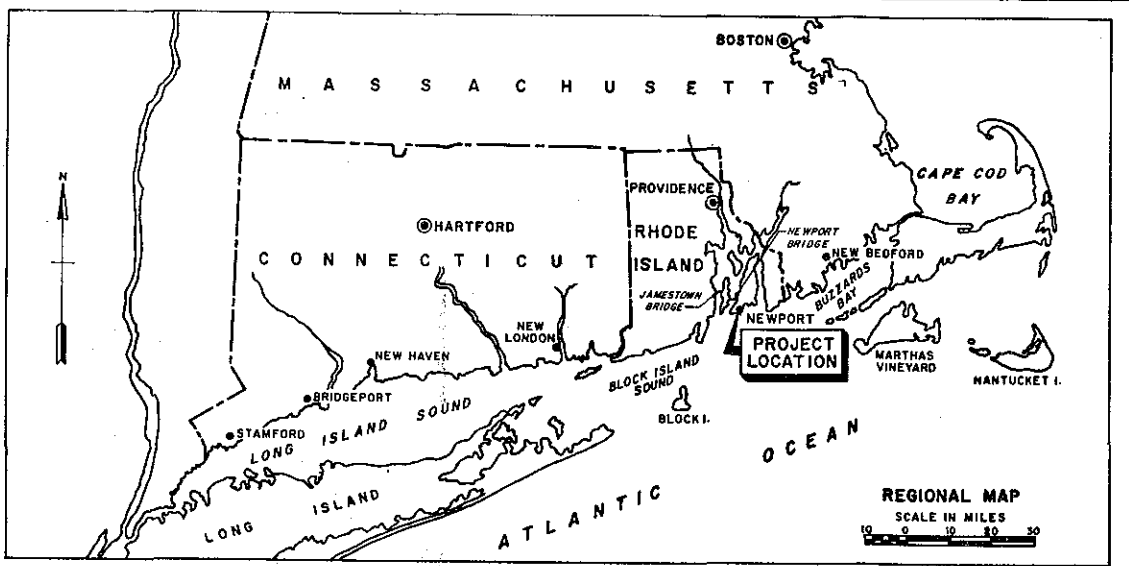
R. RECOMMENDATION

34. RECOMMENDATION. - It is recommended that the project submitted in this memorandum be approved as the basis for preparation of contract plans and specifications for the Beach Erosion Control Project, Cliff Walk, Newport, Rhode Island.

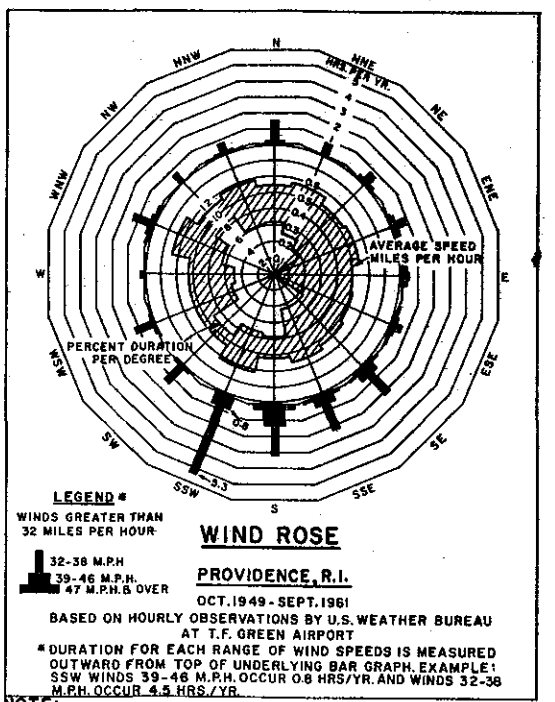




TRACED FROM C. & G. S. CHART NO. 353



COMPOSED OF DATA OBTAINED BY HINDCAST OF 3 YEARS OF WIND RECORDS (1948-1950) SHOWING PERCENT OF TIME WAVES OF DIFFERENT HEIGHT OCCUR FROM EACH DIRECTION. FROM BEACH EROSION BOARD TECHNICAL MEMORANDUM NO. 55.



NOTE: PERCENT DURATION PER DEGREE IS THE AVERAGE PERCENT DURATION OBSERVED FOR EACH 16 POINTS OF THE COMPASS DIVIDED BY 22 1/2 DEGREES.



GRAPHIC SCALES

REVISION	DATE	DESCRIPTION	BY

DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION  
CORPS OF ENGINEERS  
WALTHAM, MASS.

DES. BY:    DR. BY:    CK. BY:   

SUBMITTED:   

CHIEF,    SECTION   

APPROVAL RECOMMENDATION:   

CHIEF, TECH. ENG. BRANCH   

REVIEWED:   

PROJECT ENGINEER   

APPROVAL RECOMMENDATION:   

CHIEF, BRANCH   

DATE   

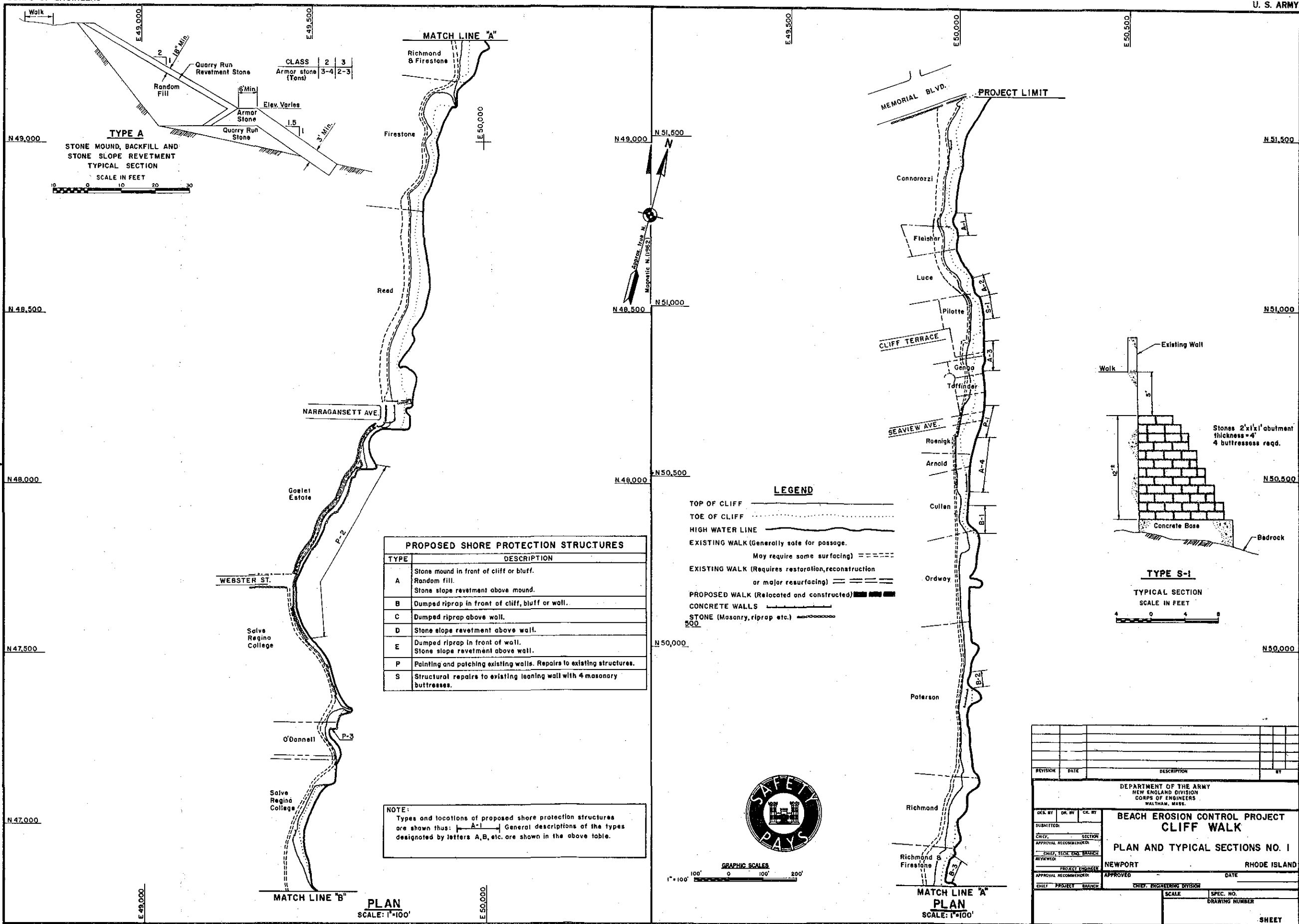
APPROVED   

CHIEF, ENGINEERING DIVISION   

SCALE    SPEC. NO.   

DRAWING NUMBER   

SHEET



REVISION	DATE	DESCRIPTION	BY

DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION  
CORPS OF ENGINEERS  
WALTHAM, MASS.

**BEACH EROSION CONTROL PROJECT  
CLIFF WALK  
PLAN AND TYPICAL SECTIONS NO. 1**

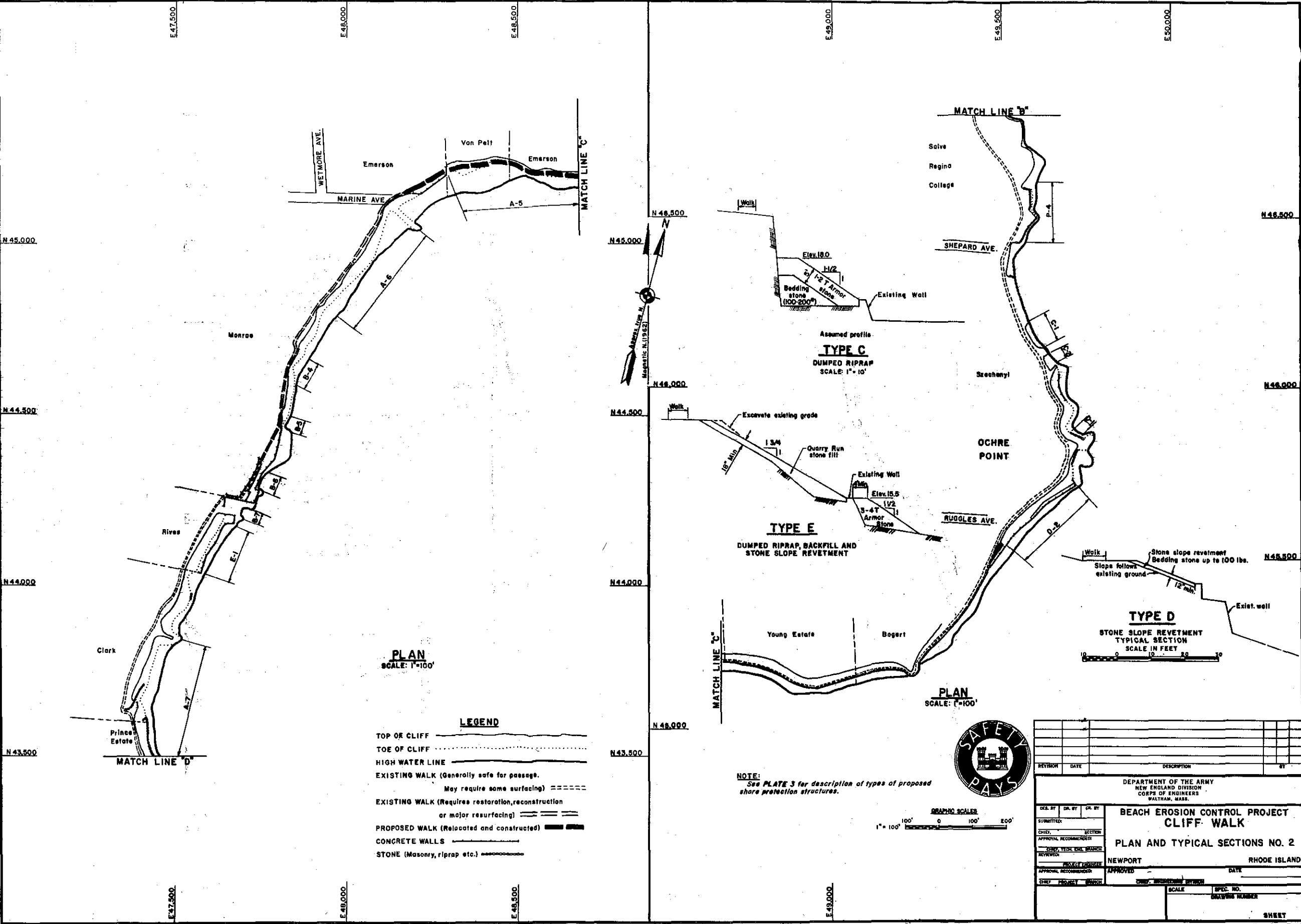
NEWPORT RHODE ISLAND

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

CHIEF, PROJECT BRANCH CHIEF, ENGINEERING DIVISION

SCALE \_\_\_\_\_ SPEC. NO. \_\_\_\_\_  
DRAWING NUMBER \_\_\_\_\_

SHEET \_\_\_\_\_



REVISION	DATE	DESCRIPTION	BY

DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION  
CORPS OF ENGINEERS  
WALTHAM, MASS.

BEACH EROSION CONTROL PROJECT  
CLIFF WALK

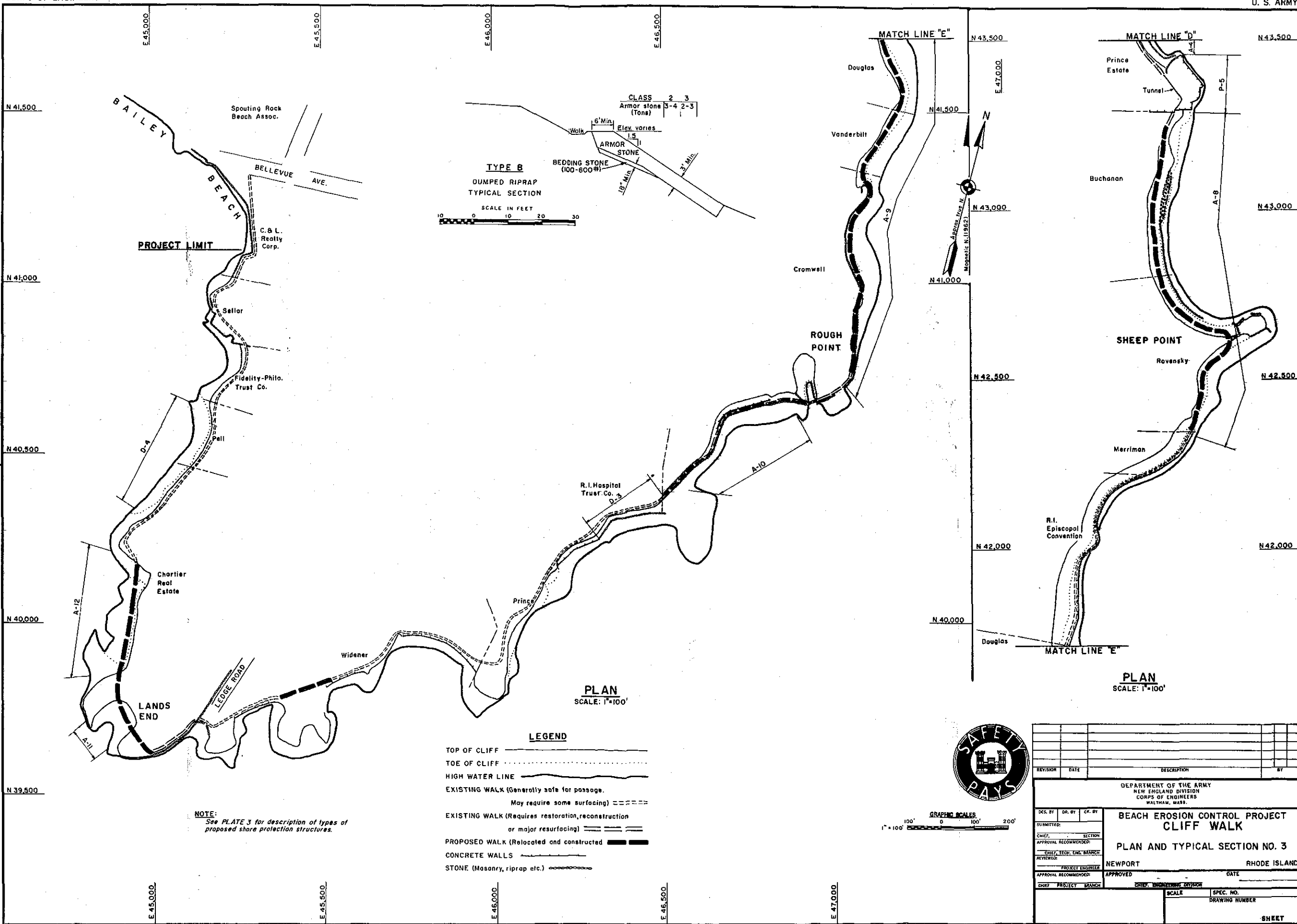
PLAN AND TYPICAL SECTIONS NO. 2

NEWPORT  
RHODE ISLAND

APPROVED  
DATE

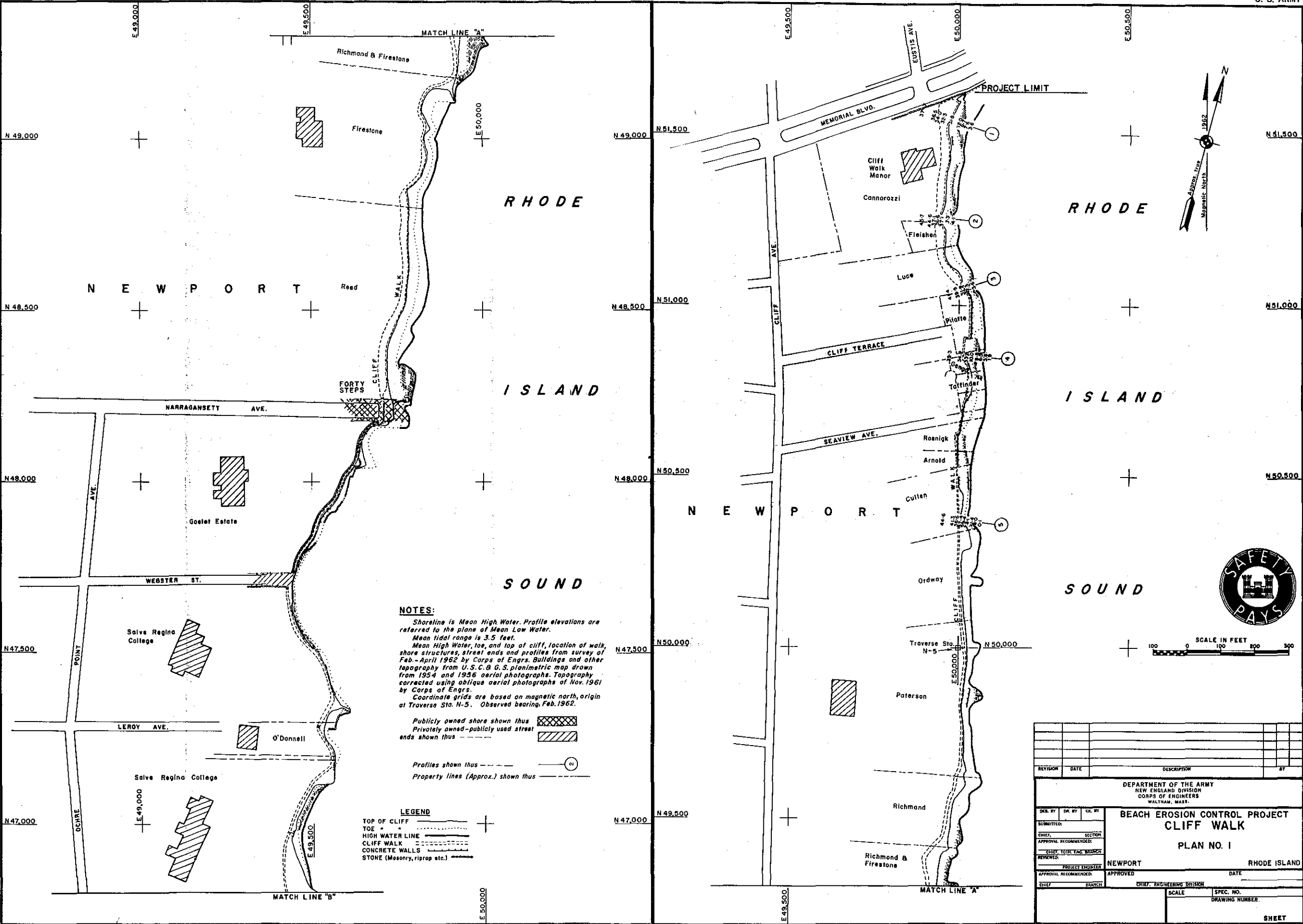
CHEF, PROJECT  
SCALE  
SPEC. NO.  
DRAWING NUMBER

SHEET

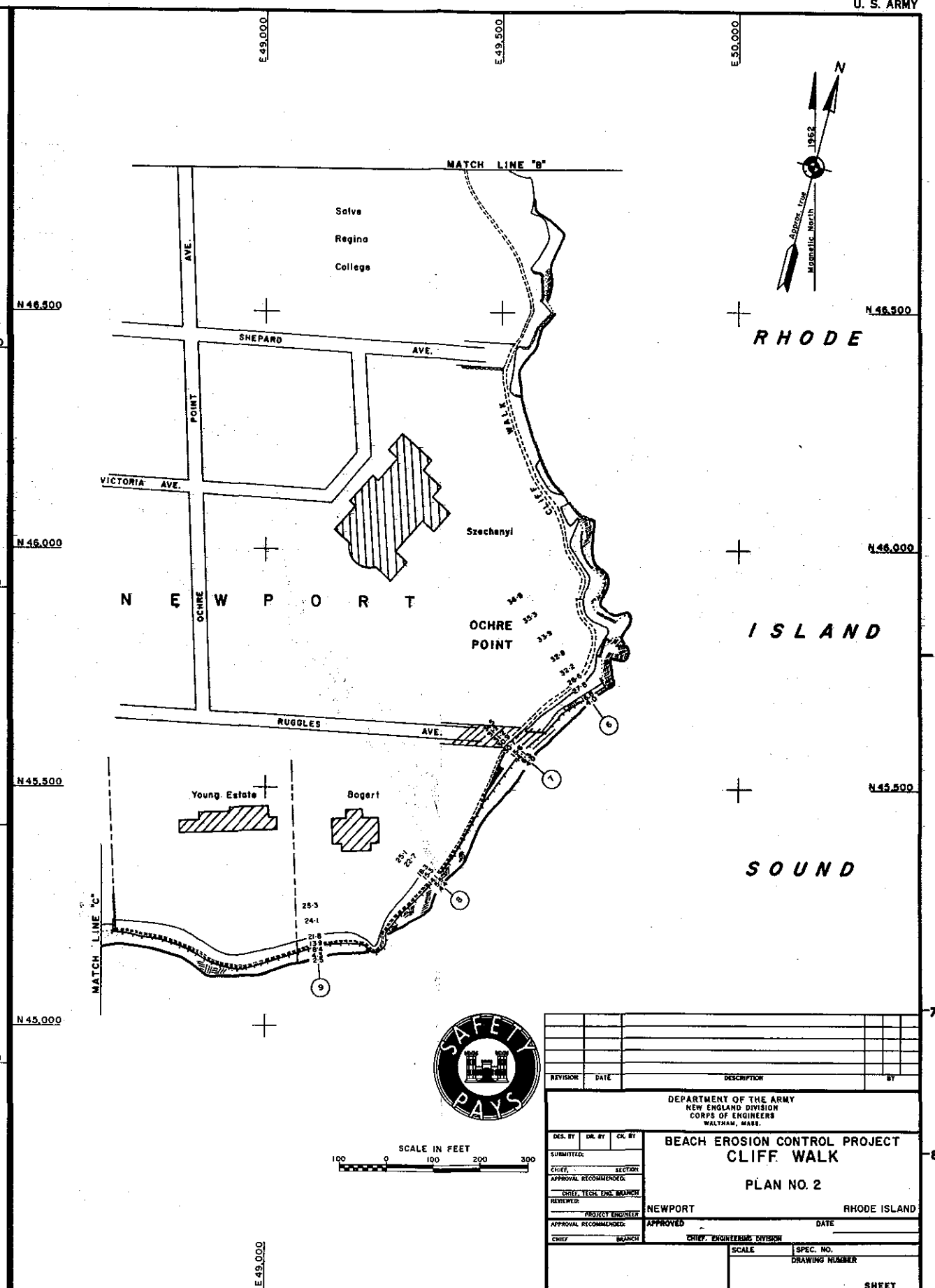
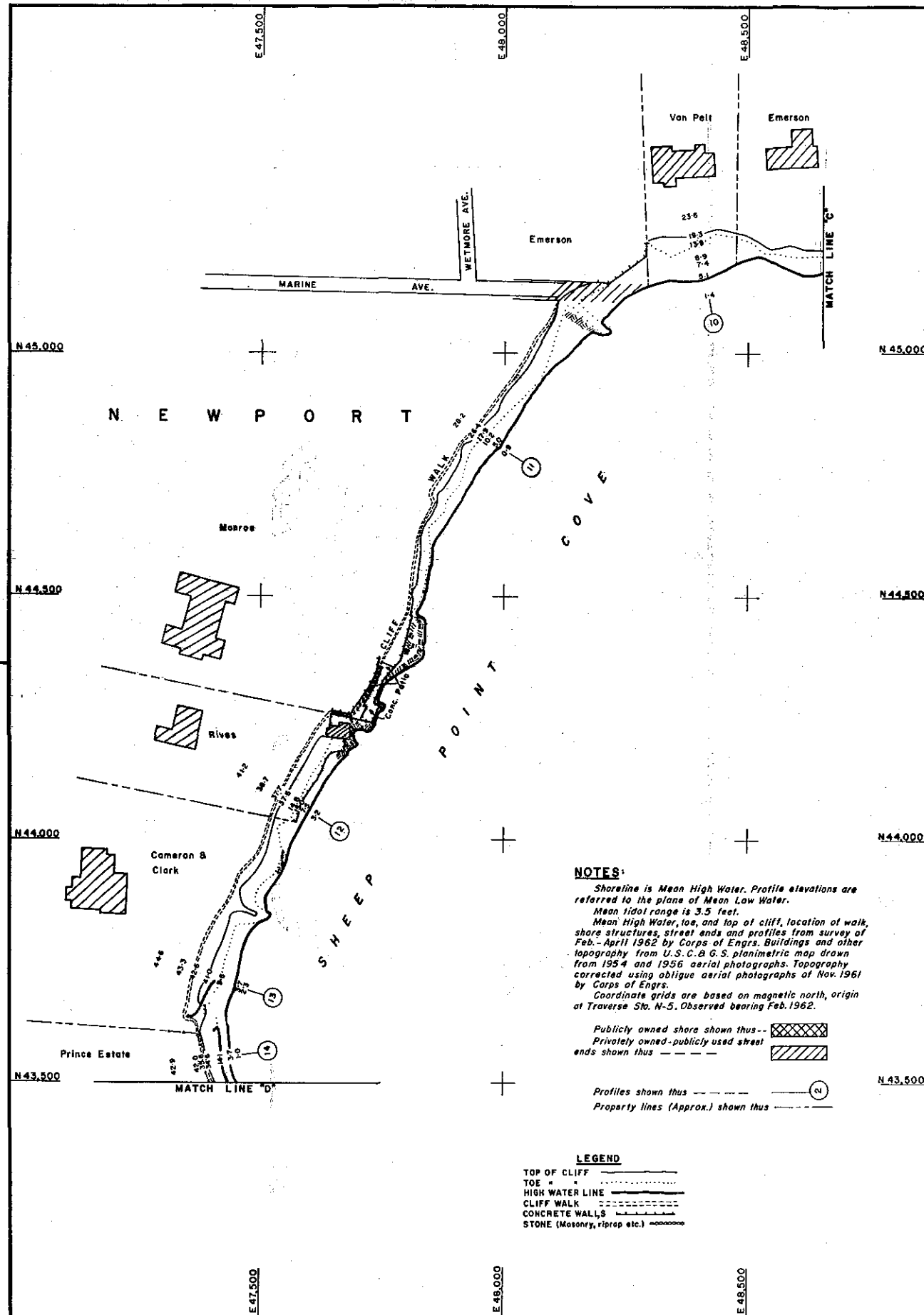


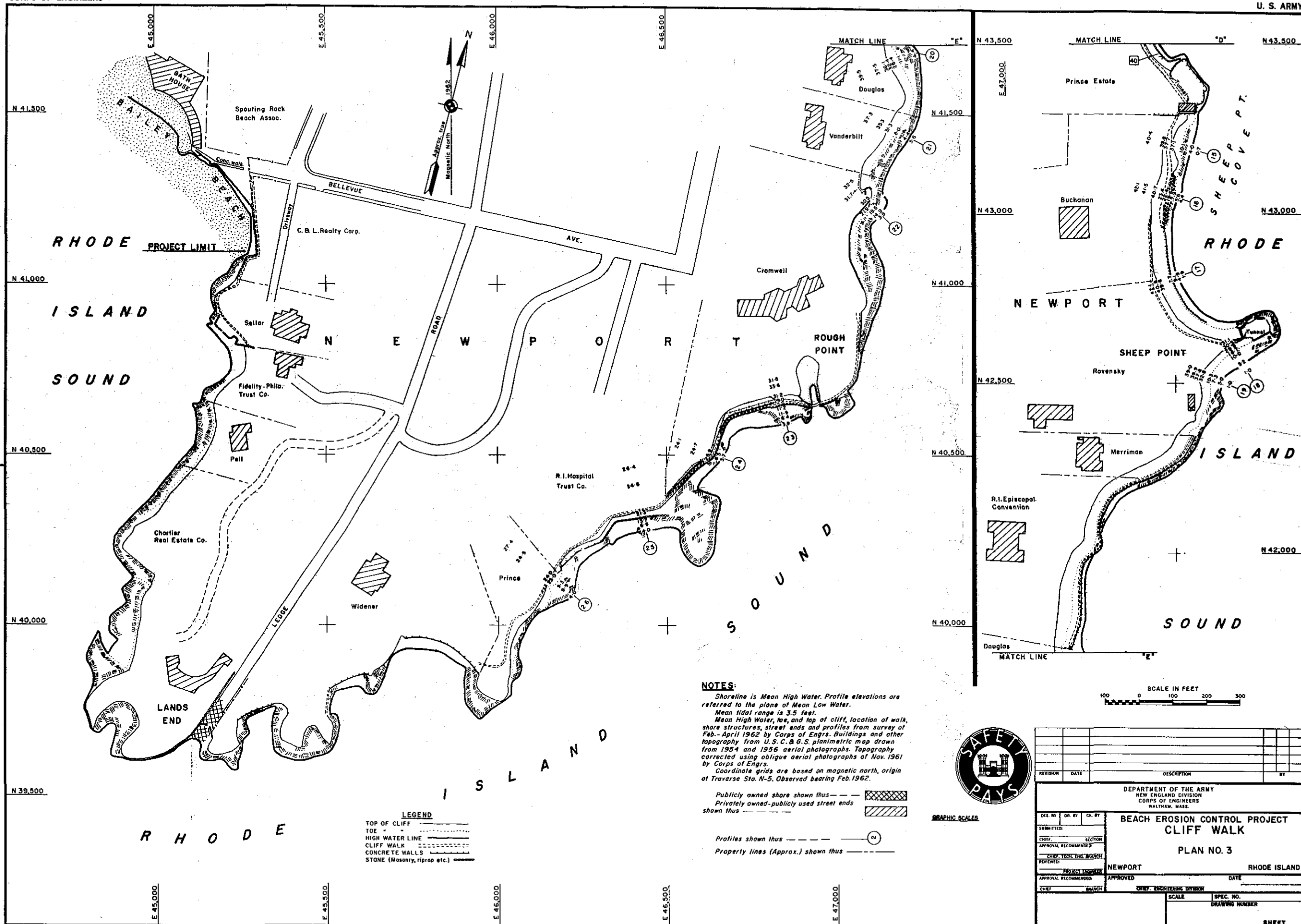
REVISION	DATE	DESCRIPTION	BY

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS WALTHAM, MASS.			
BEACH EROSION CONTROL PROJECT CLIFF WALK			
PLAN AND TYPICAL SECTION NO. 3			
NEWPORT		RHODE ISLAND	
DES. BY	DR. BY	CK. BY	
SUBMITTED:			
CHIEF, SECTION			
APPROVAL RECOMMENDED:			
CHIEF, TECH. ENG. BRANCH			
REVIEWER:			
PROJECT ENGINEER			
APPROVAL RECOMMENDED:			
CHIEF PROJECT BRANCH			
CHIEF, ENGINEERING DIVISION			
SCALE	SPEC. NO.		
DRAWING NUMBER			
SHEET			









APPENDIX A

LETTERS OF COMMENT

# *The City Of Newport*

*Rhode Island*

May 7, 1968

Corps of Engineers  
New England Division  
Department of the Army  
424 Trapelo Road  
Waltham, Massachusetts 02154

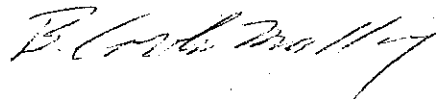
Re: Beach Erosion Control Project for  
Cliff Walk, Newport, Rhode Island  
NEDED-R

Gentlemen:

This will advise you that the local bond issue to provide funds for the above referenced project has been passed by the City of Newport. All of the non-federal contributions for this project from both the City of Newport and the State of Rhode Island are now available.

We would appreciate the opportunity of meeting with representatives of your Division to discuss the proper steps for the initiation of the construction project. Would you please advise us as to a convenient time for such a meeting.

Sincerely,



B. Cowles Mallory,  
City Manager

BCM:jm

# *The City Of Newport*

## *Rhode Island*

June 11, 1968

To Whom It May Concern:

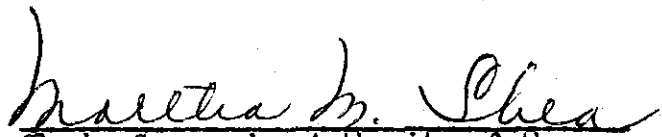
The following is the result of the question submitted to the voters at the Special State Election, held on Tuesday, April 16, A. D. 1968 and certified by the Canvassing Authority on April 29, A.D. 1968.

RECONSTRUCTING and REFURBISHING CLIFF WALK -- BONDS  
NOT EXCEEDING \$493,000  
(Chapter 27 -- Public Laws of 1968)

'Shall an act, passed at the 1967 session of the General Assembly, as amended, entitled "An Act Authorizing the City of Newport to Issue Bonds in an Amount Not Exceeding \$493,000 for Reconstructing and Refurbishing Cliff Walk" be approved?'

APPROVE ----- 2637  
REJECT ----- 374

PLURALITY for SAID QUESTION -- 2263

  
Clerk, Canvassing Authority of the  
City of Newport



**CITY SOLICITOR'S OFFICE**

CITY HALL  
NEWPORT, RHODE ISLAND 02840

March 28, 1969

TELEPHONE 846-1297

JAMES S. O'BRIEN  
CITY SOLICITOR

Department of the Army  
New England Division  
Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

ATTENTION: Mr. A. H. Frechette, Real Estate Division

Re: Cliff Walk Project, Newport, R. I.

Dear Mr. Frechette:

Pursuant to our discussions with reference to the Cliff Walk Project in which you have asked for a legal opinion as to the rights of the public to pass and repass along the Cliff Walk, so-called, please be advised as follows:

Cliff Walk, which is a foot path along the top of certain cliffs ranging from Memorial Boulevard on one end to Bellevue Avenue on the other end, has been in existence and in use by the general public for well over 100 years and, in all probability, going back to the founding of Newport, R. I. in 1639. From records available at the City Hall it is clear that the owners of various properties abutting the Cliffs, commencing in approximately 1840 through 1900, laid out a pedestrian walk in front of their various properties along the top of the Cliffs and some even built special tunnels, bridges, etc., to facilitate the public's right of access along the Cliffs. By this dedication by the owners of the property and by the continued use by the general public there has arisen a public easement to pass and repass, for pedestrian purposes, a foot path around the edge of the Cliffs.

Article I, Section 17 of the Constitution of the State of Rhode Island, which was adopted in 1843, provides as follows:

"The people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they have been heretofore entitled under the charter and usages of this state. But no new right is intended to be granted nor any existing right impaired, by this declaration".

Department of the Army, N.E. Division -2-  
Corps of Engineers, Waltham, Mass.

James S. O'Brien, City Solicitor  
March 28, 1969

In the case of Jackvony vs. Powell, 67 R. I. 218, the Rhode Island Supreme Court at page 227, held as follows:

"After considering the above authorities in this state and all other authorities here and elsewhere which have been called to our attention or which we have found and which have any bearing on the Constitutional question now before us, we are of the opinion that at the time of the adoption of our Constitution there was, among the 'privileges of the shore', to which the people of this state had been theretofore entitled under the 'usages of the state', a public right of passage along the shore, at least for certain proper purposes and subject, very possibly, to reasonable regulation by acts of the General Assembly in the interests of the people of the state".

In modern times the right of the general public to pass and repass along the so-called Cliff Walk has not been challenged by any person, except in 1938 a barricade was erected across the walk near its entrance from Memorial Boulevard. This barricade was promptly demolished by the sheriff of Newport county, acting as a state officer and representing the public. The State of Rhode Island, through its voters, has authorized a bond issue to be used as the state's share in repairing the Cliff Walk, which clearly shows that the walk is a public right as state money could not be spent on a private walkway. The voters of the City of Newport have authorized the expenditure of bond monies to assist in repairing the Cliff Walk, as has the Congress of the United States.

It is the opinion of this office that there is a public easement by dedication and continued use along the top of the cliffs of Memorial Boulevard to Bellevue Avenue. This public easement varies in width, from five to ten feet, and is clearly laid out and has been so laid out and used for over 100 years.

Very truly yours,

  
James S. O'Brien  
City Solicitor

JSO'B:con